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The Role of Microbial Ecology in Microbiology

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Description

Microbial ecology (or environmental microbiology) is the ecology of microorganisms. In other words, it is the relationship between microorganisms and the environment. It affects four major areas of living beings such as eukaryotes, archaea, bacteria, and viruses. Microbial ecology analysis is a relatively new topic in a new field of research in biochar. As a result, it discourses on advances in knowledge development on the effects of biochar on micro and macro-biological soil communities in different ecosystems and situations. The possibilities of methods, knowledge gaps, and their future research for research and application purposes were specifically pointed out.

Therefore, it reviews the important discussions to develop an overview of future research possibilities and applications of (molecular) microbial ecology techniques in bio-enhanced or affected ecosystems increase. In parallel with the need to address research and application issues through the latest approaches, there is also consideration of biochar-based policies. This requires guidance to support biochar research, while the results of the research must influence policy making. This research will help improve our lives through the use of microorganisms in the biotechnology of useful products such as environmental recovery, food production, antibiotics, dietary supplements and chemicals. Helps to measure the impact of climate change and land use. It also helps answer the most practical questions such as "How can I improve my life?".

There are also basic questions such as "Why are you here?". It shows us our position in the universe, how life began and developed, and how we relate to the great diversity of all other living things. Microorganisms embrace enormous biodiversity, support all forms of life, including humans, and play an important role in many ecosystem services. The rules governing the assembly of microbial communities are becoming more and more well-known due to significant advances in molecules and analytical methods, but understanding them continues to be an important challenge in microbial ecology. The existence of biogeographic patterns within microbial communities is established and explained in terms of landscape-scale processes such as selection, drift, diffusion and mutation.

The effects of habitat mottle on microbial assembly rules are not yet fully understood. Here we review how landscape ecological principles can be adapted to explore new perspectives on the mechanisms that determine microbial community structure. To provide a general overview, we characterize the microbial landscape, the spatial and temporal scales of the mechanisms that drive microbial placement, and the feedback between microbial and landscape structures.

We document the effects of landscape heterogeneity, landscape fragmentation, and landscape dynamics on microbial community structure, showing that macro-biological predictions apply, at least in a part, to microbial communities and explain why new meta-community approaches in microbial ecology should include clear characterization of landscape structures in their development and interpretation. It also describes how biological interactions such as competition, predators or mutualism can affect the microbial landscape and participate in the feedback process described. However, the application of landscape ecology to the world of microorganisms cannot simply include the transfer of existing theoretical frameworks.

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